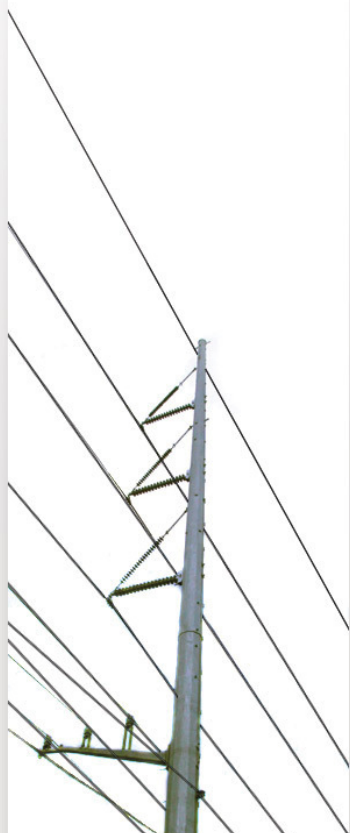




**Helping our members work together
to keep the lights on...
today & in the future**





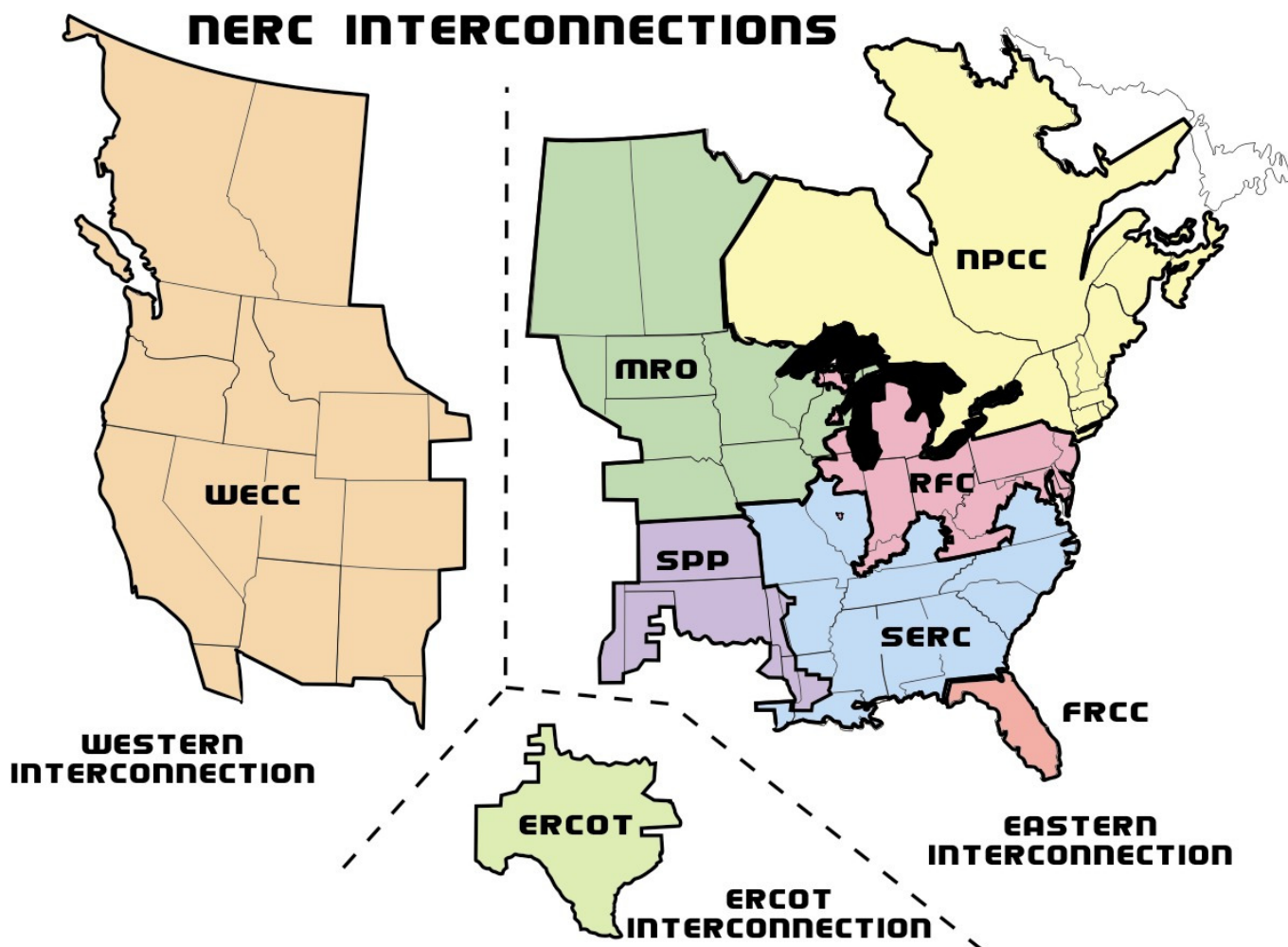
Expansion Planning for SPP and Beyond

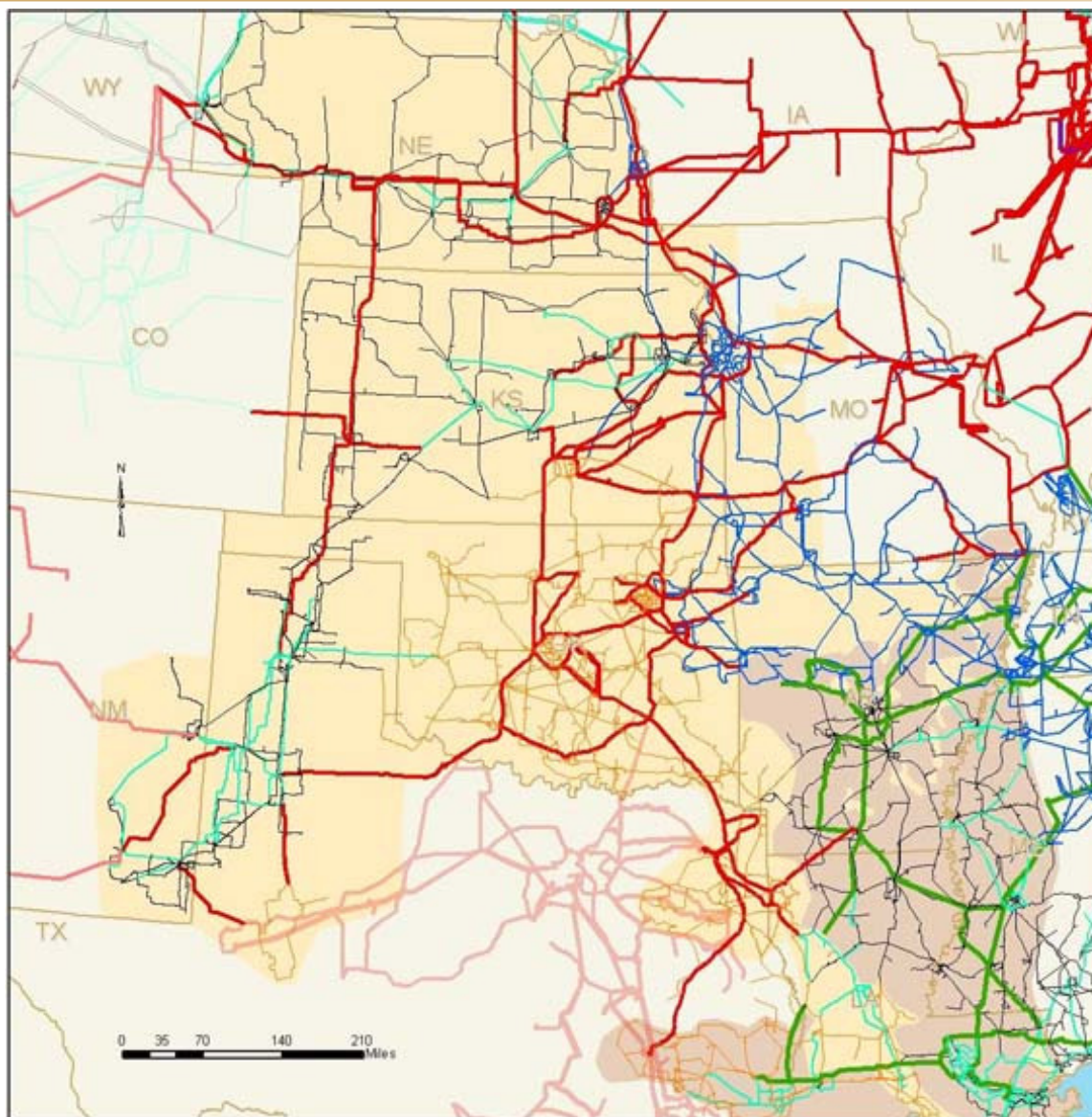
Kansas Wind and Renewable Energy Conference

October 6, 2009



3 Interconnections / 8 NERC Regions





**Current SPP
Transmission System
(2009)**

- 115 kV
- 138 kV
- 161 kV
- 230 kV
- 345 kV
- Southwest Power Pool
- Entergy ICT





Regional Benefits

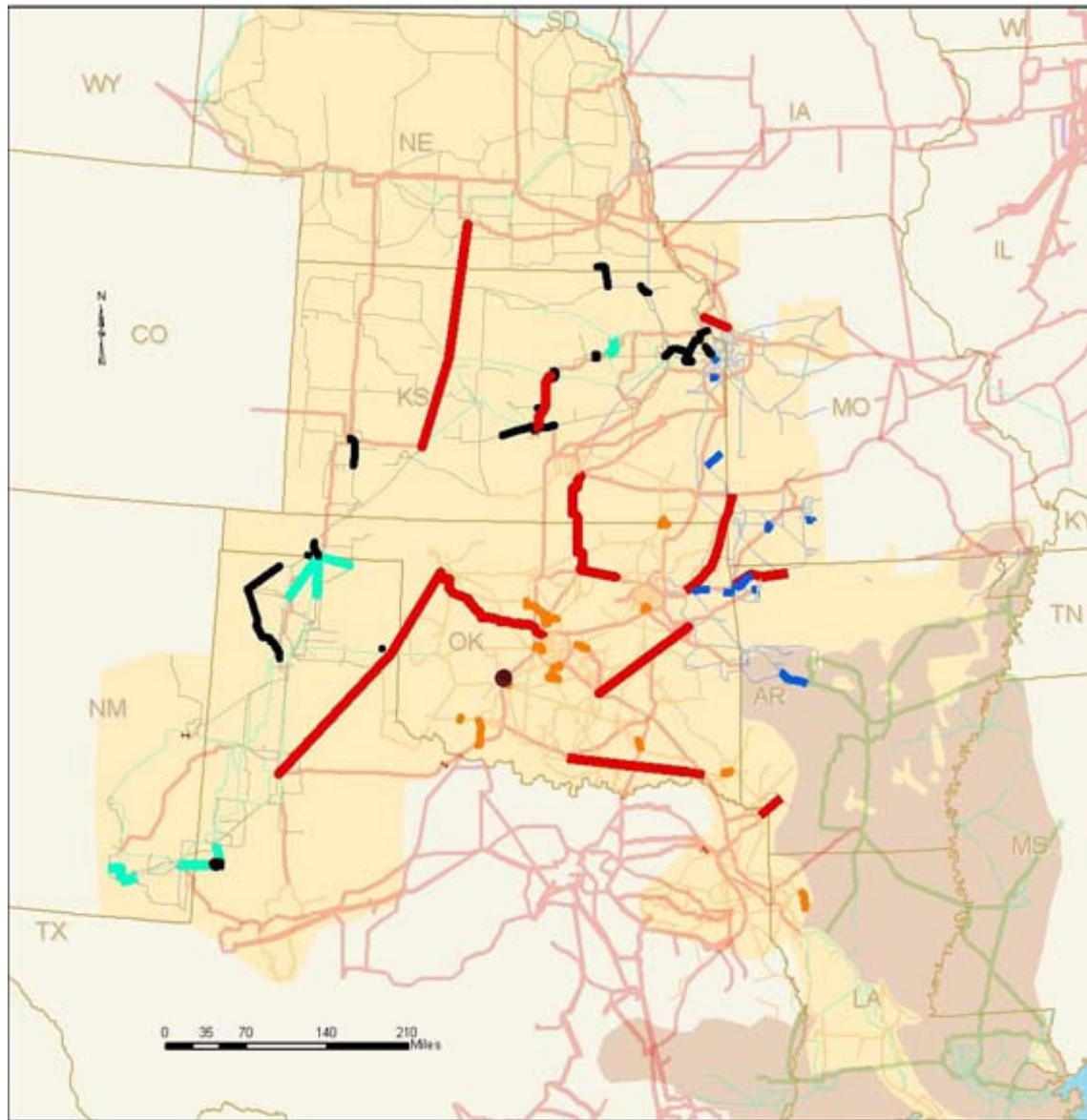
- **Systematically optimizing the economies of scale and diversity to improve reliability and efficiencies**
- **More opportunities?**

YES!

- **Load and generation balancing (additional real-time)**
- **Regional generation commitment (day-ahead)**
- **Proactive transmission expansion (5-25 years)**



***Where are we now with
transmission planning?***



Projects with Construction Commitments

(Projects with NTC's, TSA's, or currently under construction)

- Substation
- 115 kV
- 138 kV
- 161 kV
- 230 kV
- 345 kV
- Southwest Power Pool
- Entergy ICT

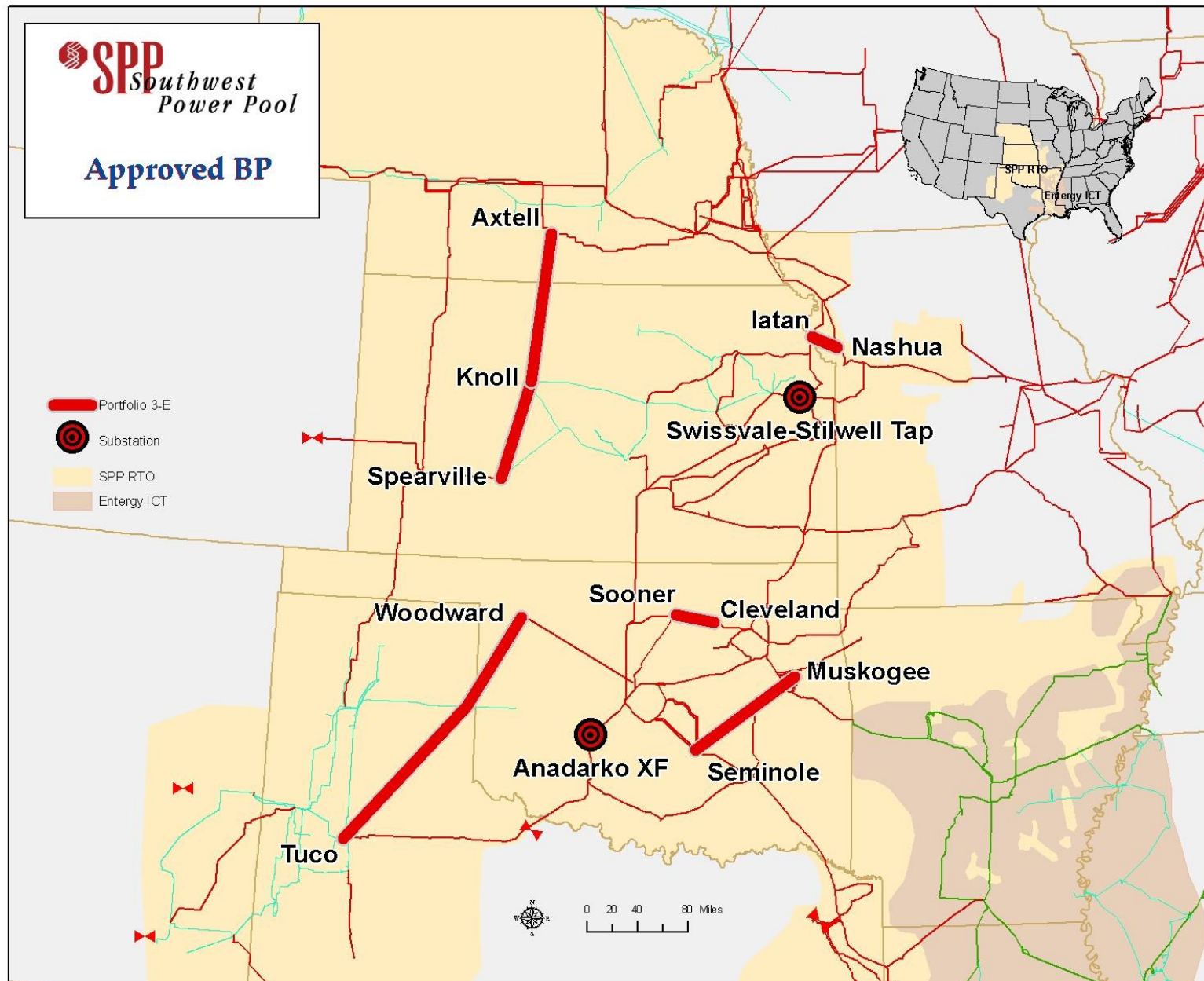




Balanced Portfolio

- **Economic transmission upgrades (cost) to lower generation production costs (benefit)**
- **Must balance costs and benefits in each zone**
- **Transmission expansion costs shared regionally (load ratio share)**



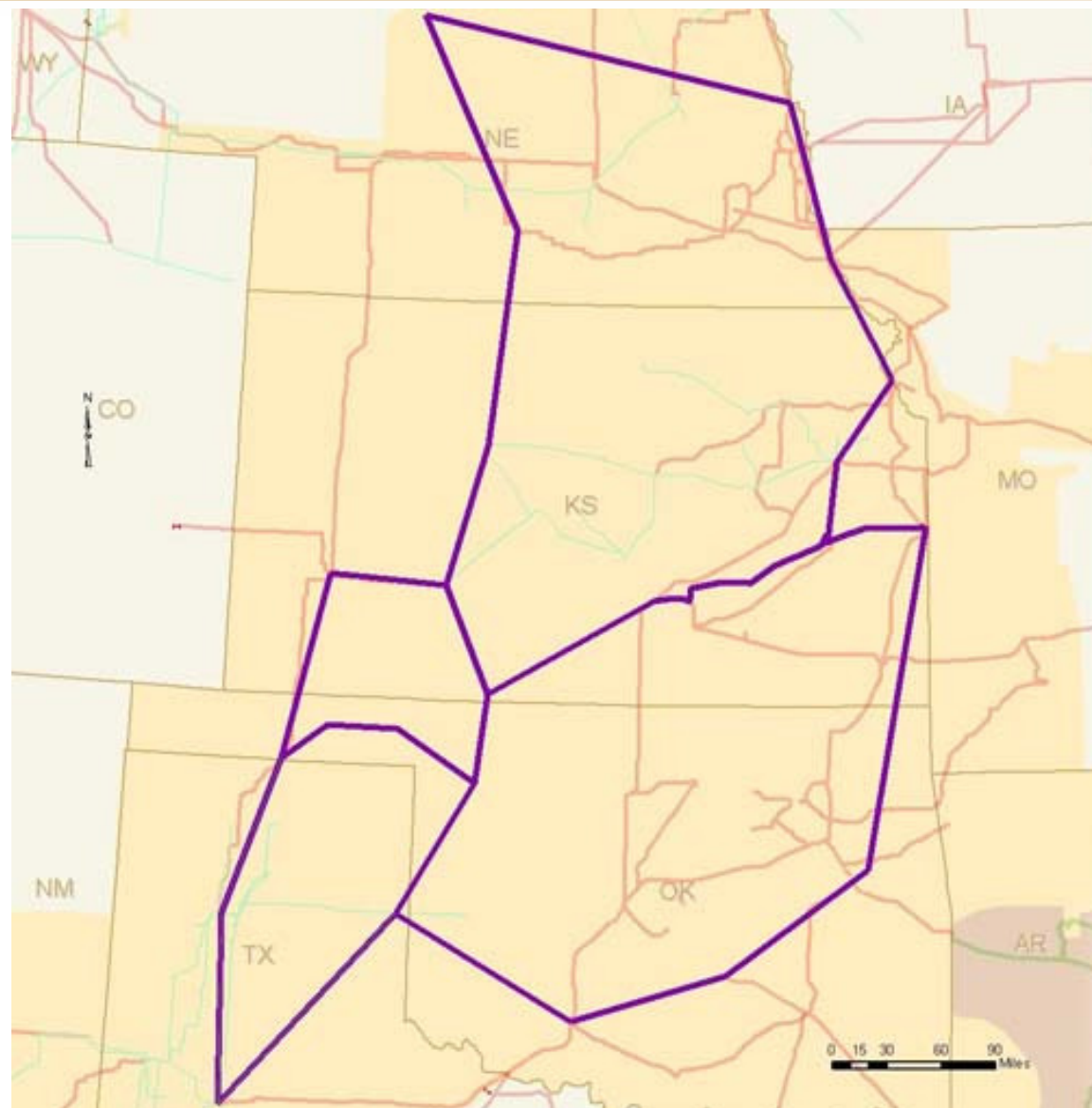




Extra High Voltage Study

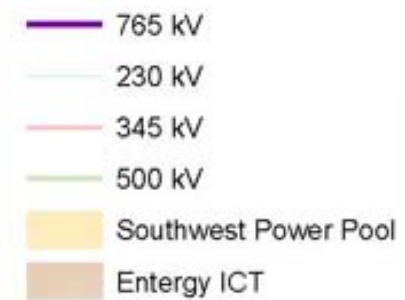
- Looks to 2026 and beyond
- Suggests overlaying SPP footprint with 765 kV transmission
- Enhances access to all types of generation, including renewables
- Long-range plan for short-term decisions





SPP Southwest
Power Pool

Draft EHV Overlay
(230 kV +)





Integrated Transmission Planning





What is Integrated Transmission Planning?

- **Goal:** Design transmission backbone to connect load to the most reasonable generation alternatives
 - Strengthen ties to Eastern and Western Interconnections, and ERCOT
 - Improve connections between SPP's east and west regions
- **Horizons:** 20, 10, and 4 year
- **Focus:** Regional, integrated with local
- **Resulting in:** Comprehensive list of needed projects for SPP region over next 20 years
 - With 40 year financial/economic analysis
- **Underlying Value:** Reliability and Economics are inseparable

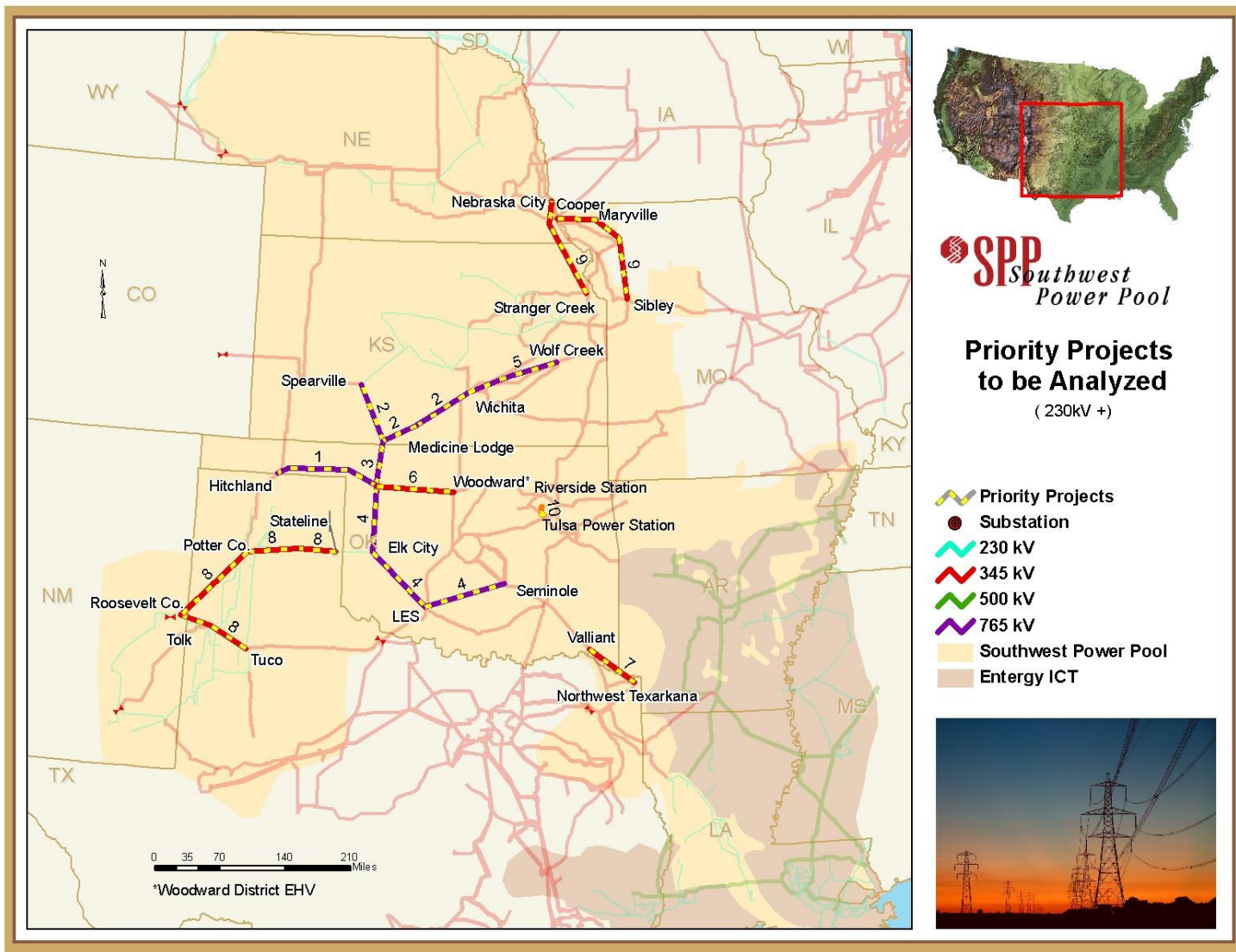


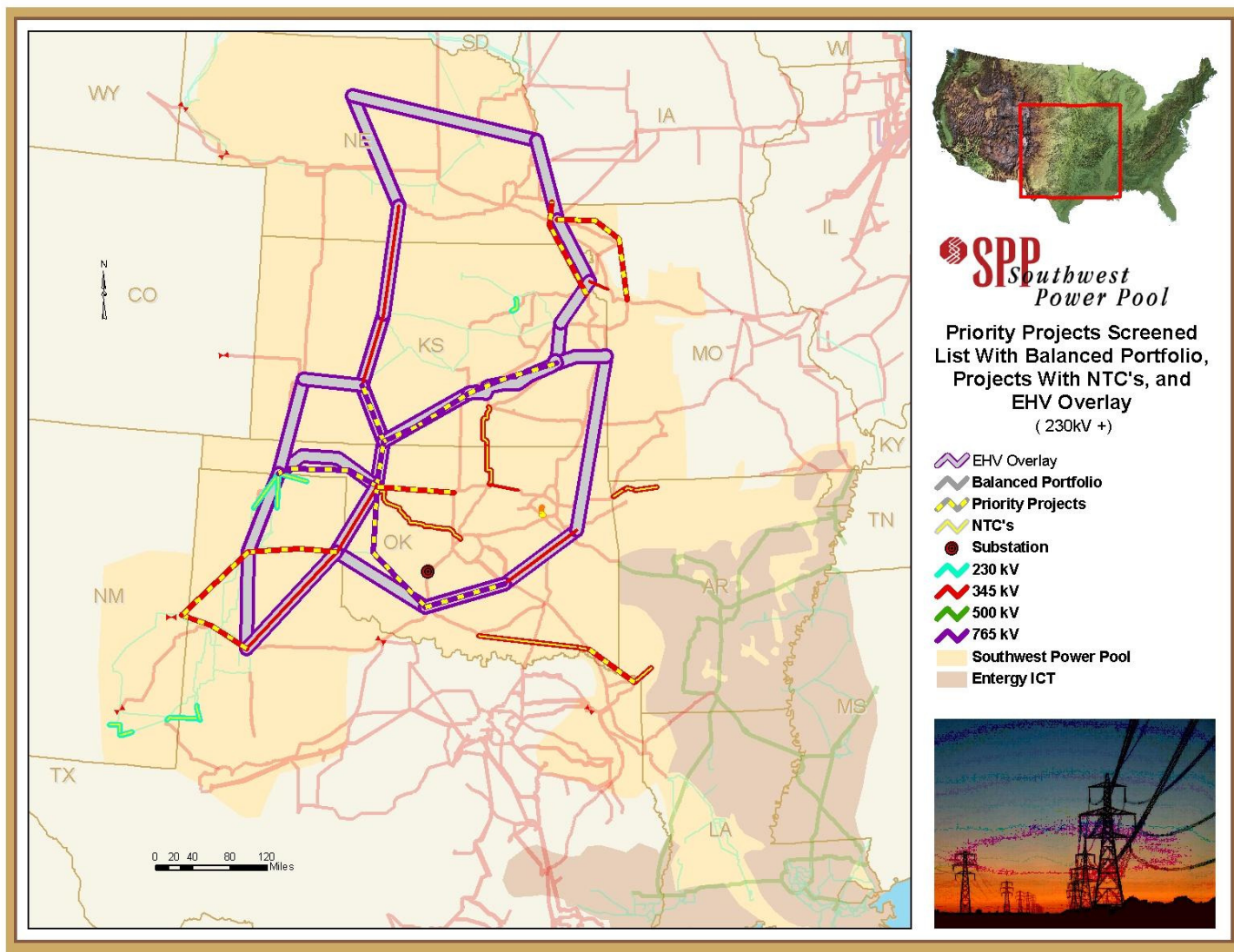
Priority Projects



Priority Projects

- **Near-term opportunities while transitioning to ITP**
- **“Readily apparent” projects that continue to appear in current planning processes**
- **Relieve grid congestion**
- **Improve access to transmission service**
- **Improve transfers between SPP’s East and West regions**
- **Economic projects up to 765 kV; across SPP region**







Priority Projects

- Initial recommendations based on preliminary analyses included 345 kV projects to address historical constraints in MO River Valley, and between SE OK and AR/LA/TX, plus cornerstone 765 kV projects: Spearville – Comanche – Medicine Lodge - Wichita in KS and Comanche – Woodward District EHV 765 kV to integrate EHV in western KS and OK.
- BOD Workshop 9/29 in DFW- input received at the Workshop will be considered in the ongoing analysis of the Priority Projects.
- Finalization of the 765 kV project recommendation is anticipated in January 2010 after the release of the WITF Report.



Cost Allocation





Who pays for transmission now?



<i>Type</i>	Reliability	Economic
<i>Purpose</i>	Keep lights on	Reduce congestion with benefit/cost ≥ 1
<i>Also Called</i>	Base Plan Funding	Balanced Portfolio
<i>Funded By</i>	Region - 33% Impacted zone- 67%	Shared regionally (postage stamp)
<i>Voltage</i>	All	345 kV+
<i>Implemented</i>	2005	2009



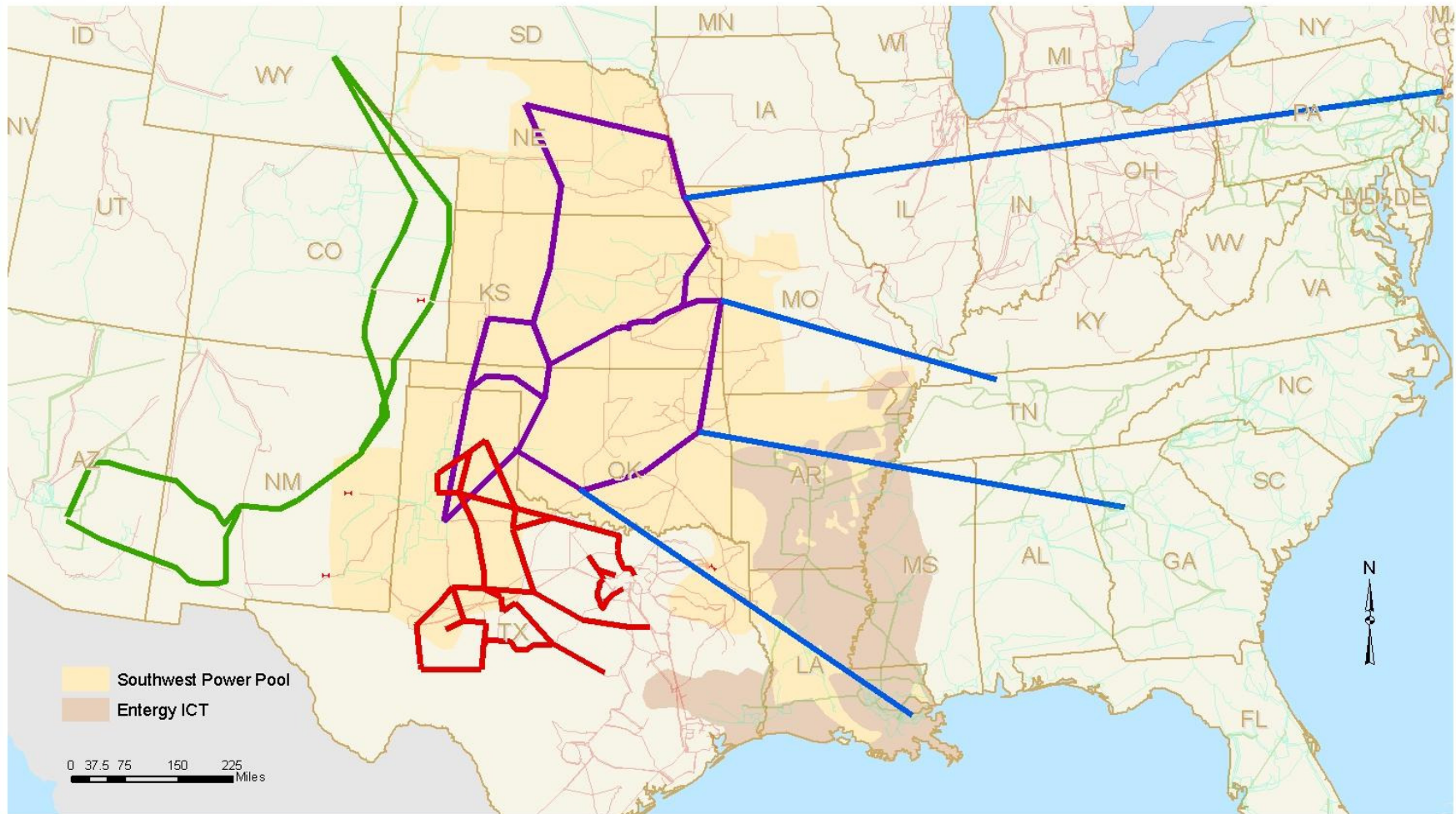
Initial, high-level rate design options

- **Highway/Byway rate design**
- **Highway rate for 345 kV + with possible access and usage based charges**
- **Byway rate design – zonal allocations**
- **Expect policy recommendations in October with subsequent drafting of tariff language for review and approval**



MAJOR TRANSMISSION EXPANSION IN AND AROUND SPP

- JCSP
- SPP Draft Expansion (765 kV)
- CREZ Expansion (345 kV)
- HPX Expansion (500 kV)
- 230 kV
- 345 kV
- 500 kV





HPX Footprint Focus

- **Located within footprint of participating utilities**
- **Roadmap for local & regional transmission expansion within WECC**
- **Enables WREZ renewables**
- **Local & regional economic benefits**
- **Reinforces local & WECC transmission**
- **Connects component projects**
- **Provides interconnection opportunities**



Trans Projects 765 kV

Trans Projects 345 kV

Trans Alt 765 kV

Trans Alt 345 kV

SPP Coverage Area

Entergy ICT Coverage Area

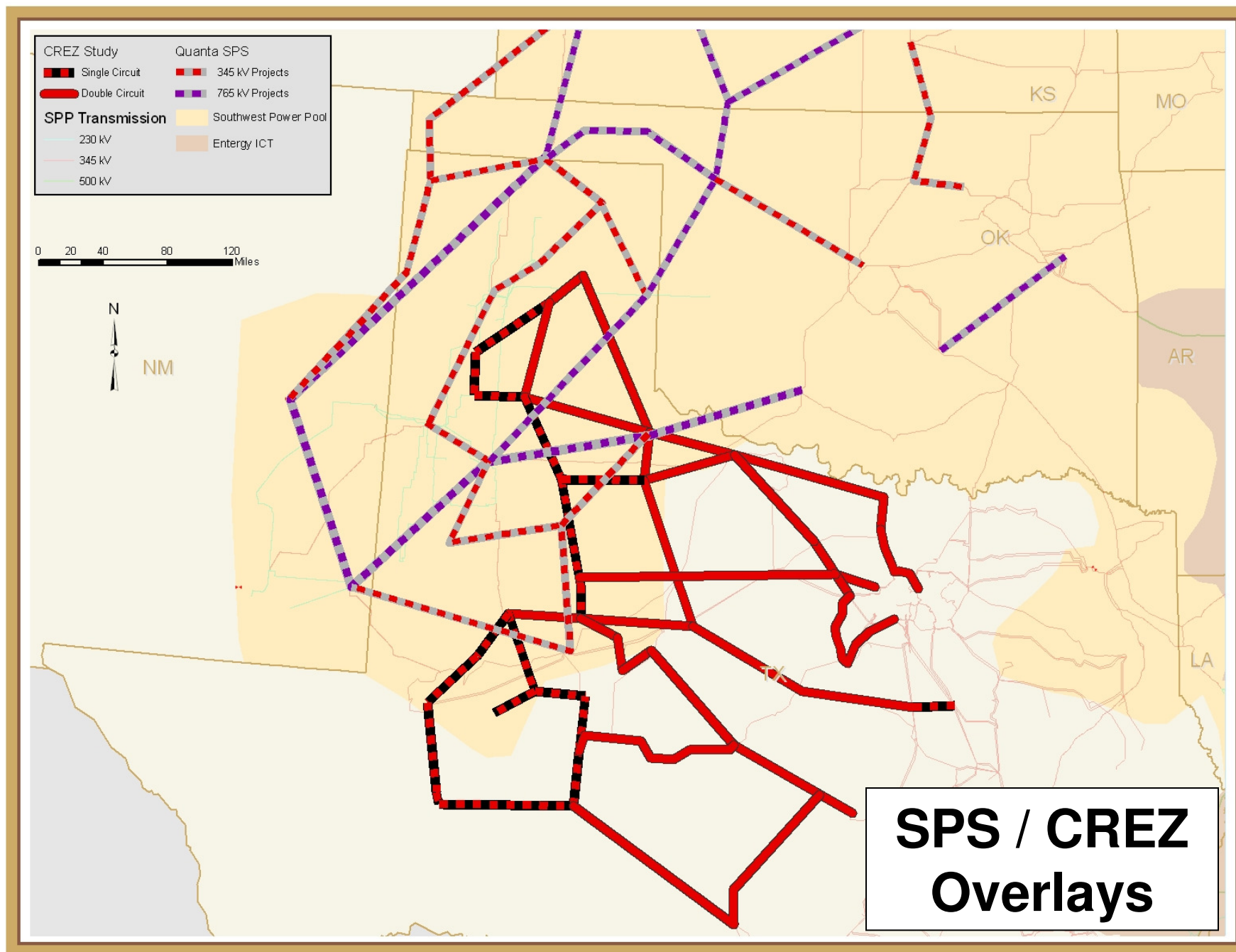
SPP
Southwest
Power Pool

EHV System



0 35 70 140 210 Miles

SPS 2023 Alternative 2





Other Opportunities In Process

- **Santa Fe 500 kV project to aggregate premium renewables in south-central plains of SPP and eastern portions of NM in WECC using RETA funds and deliver capacity/energy to premium markets in WECC, capitalizing on wind/solar profiles and load shapes due to time shifts**
- **Tres Amigas in NM with HVDC interconnections between WECC, SPP and ERCOT**
- **WECC customers for western KS and NE renewables**
- **Limits on possibilities are self-imposed...**



Future is Bright, so Let's Get it Right

- Unprecedented levels of cooperation and coordination among transmission providers, regulators, and stakeholders is critical.
 - JCSP'08 and EWITS were great start. EIPC will take joint planning and scenario analyses to inform interconnection-wide policy decisions to the next level
 - Prairie Wind and ITC V-Plan settlement at KCC was key
 - EHV design standards may improve effectiveness and greatly improve economies of scale and scope
- “Right-sizing” future projects is key to mitigate stranded investments, but “least cost, used and useful” mandates may be stumbling blocks.



Asset Management is Key

- Existing and future ROWs may be most valuable transmission asset, so let's be careful of corridor fatigue and make wise routing/land use decisions.
- Aging infrastructure and merchant transmission projects provides opportunities and challenges.
- Smart Grid Demonstration Project like proposed Dynamic Line Ratings for 6 circuits and 5 TOs are bridges to the future.
- We cannot get to the future, by doing what we've done in the past...



Leadership is Paramount

- **Clarity on energy and environmental policies and objectives to frame future plans.**
- **Federal leadership on EHV transmission siting and cost allocations may be required.**
- **Certainty on cost recovery, with fair and simple cost allocations.**
- **Seams agreements to address differences.**
- **Creative solutions using new technology with investments in research, development and demonstration.**





Jay Caspary
Director, Transmission Development
501.614.3220
jcaspary@spp.org